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NOx CATALYST CANDIDATES

(Poster)

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ABSTRACT

Detroit Diesel Corporation is working with the Pennsylvania State University, AlliedSignal Environmental Catalysts, and Delphi Energy and Engine Management Systems to develop lean NOx catalysts capable of reducing the NOx emissions of diesel engines by over 50%. Successful catalysts will utilize diesel fuel as the primary reductant species and will be integrated into a robust system which is suitable for heavy-duty vehicle use.

Several candidate noble and base metal molecular sieve and specialized metal oxide materials have been synthesized. Some of these have demonstrated over 50% NOx conversion under laboratory test conditions. Catalyst efficiency and stability improvements are being pursued via novel catalyst compositions, modified microstructures, and innovative material synthesis techniques. An efficient screen testing protocol involving bench reactor studies, and partial and full flow engine tests is being utilized. This will provide fundamental kinetic information and will lead to the selection of the most promising catalyst formulations for further evaluation and development.

These catalyst development activities are a central part of Detroit Diesel's integrated emission reduction program, a program which is principally funded by the U.S. Department of Energy.